



OAR Perspective: ORD Science Contributes to the Development of NAAQS

Mary Ross,¹ Karen Martin,¹ and Lester Grant²

U.S. Environmental Protection Agency, ¹Office of Air and Radiation, ²Office of Research and Development

research
and
development

Questions

How are the National Ambient Air Quality Standards (NAAQS) developed?

How does ORD research contribute to this process?



EPA NAAQS Review Process

As required by the Clean Air Act, the EPA sets and periodically reviews NAAQS:

- Primary standards protect public health
- Secondary standards protect public welfare

Elements of the NAAQS include:

- Indicator(s) (e.g., PM_{2.5}, ozone)
- Averaging time(s) (e.g., 1-hour, annual)
- Level(s) (e.g., 15 µg/m³, 0.08 ppm)
- Form (e.g., 98thtile, 4th maximum)

Review process involves development of the Criteria Document by ORD and the Staff Paper by OAR.

ORD Criteria Document

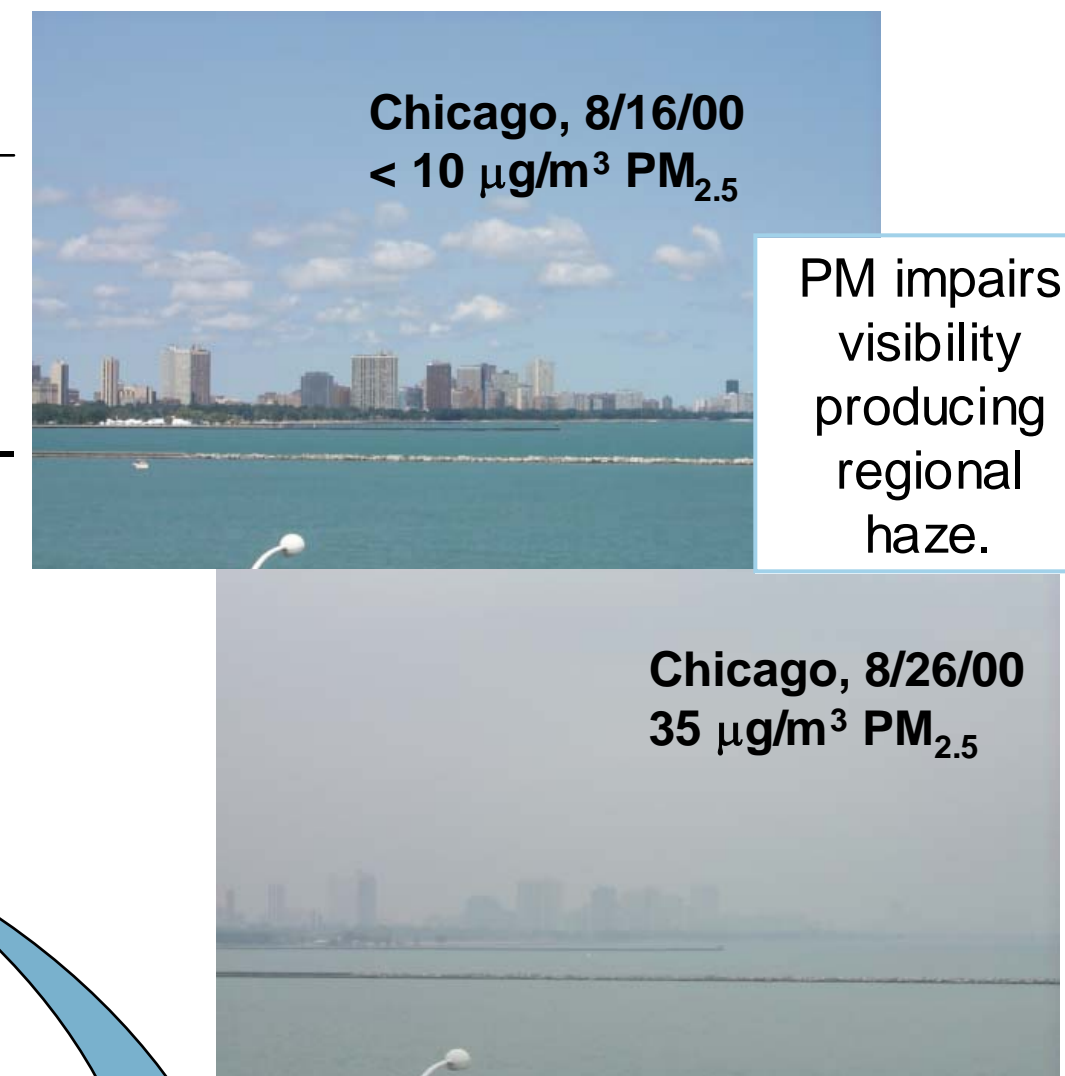
- Extensively assesses the most recent scientific information for criteria pollutants, integrated with existing knowledge.
- Includes assessment of evidence on: atmospheric chemistry and physics; sources and emissions; air quality; human exposure; dosimetry; health effects; and environmental effects.
- *EPA, as well as other U.S. federal or state agencies, provides support for many of the new studies, either through intramural or extramural funding.*

OAR Staff Paper

- Evaluates and integrates Criteria Document's synthesis of evidence on health and welfare effects.
- Presents results of staff quantitative analyses and assessments:
 - Air quality data
 - Exposure
 - Human health risk
 - Ecological and welfare effects (e.g., visibility impairment)
- Makes recommendations to the Administrator regarding potential revisions to the elements of the NAAQS.

NAAQS Review Timeline

	1997 → → 2004	2005	2006	2007	2008
PM	EPA revises PM and Ozone NAAQS	Criteria Document Completed	Staff Paper Completed	NAAQS Review Proposed Decision	NAAQS Review Final Decision
Ozone			Criteria Document Completed	Staff Paper Completed	NAAQS Review Proposed Decision
				NAAQS Review Proposed Decision	NAAQS Review Final Decision



ORD Science Contributes throughout the NAAQS Process

- ORD scientists, grantees, and research partners (e.g., Health Effects Institute) contribute key studies assessed in the criteria documents and staff papers.
- ORD's National Center for Environmental Assessment, with other ORD scientists, develop the Criteria Document.
- ORD Scientists review the staff paper and provide technical consultation in the development of the proposed and final NAAQS.

National Ambient Air Quality Standards

Pollutant	Primary and Secondary Standards.	Averaging Times
Particulate Matter (PM ₁₀)	50 µg/m ³ 150 µg/m ³	Annual ¹ 24-hour ²
Particulate Matter (PM _{2.5})	15 µg/m ³ 65 µg/m ³	Annual ³ 24-hour ⁴
Ozone	0.08 ppm	8-hour ⁵

1. Arithmetic mean, at each monitor.
2. Not to be exceeded more than once per year.
3. 3-year average of the annual arithmetic mean.
4. 3-year average of the 98th percentile.
5. 3-year average of the 4th-highest daily max.

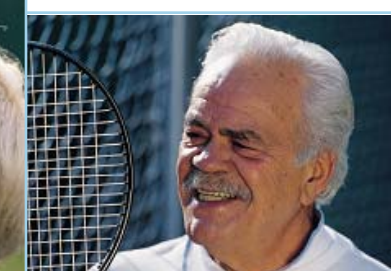
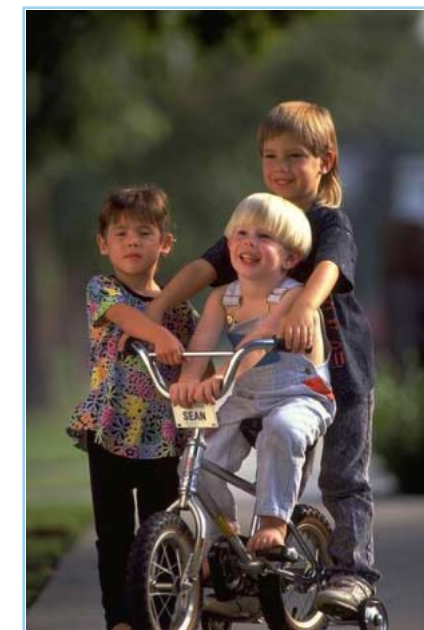
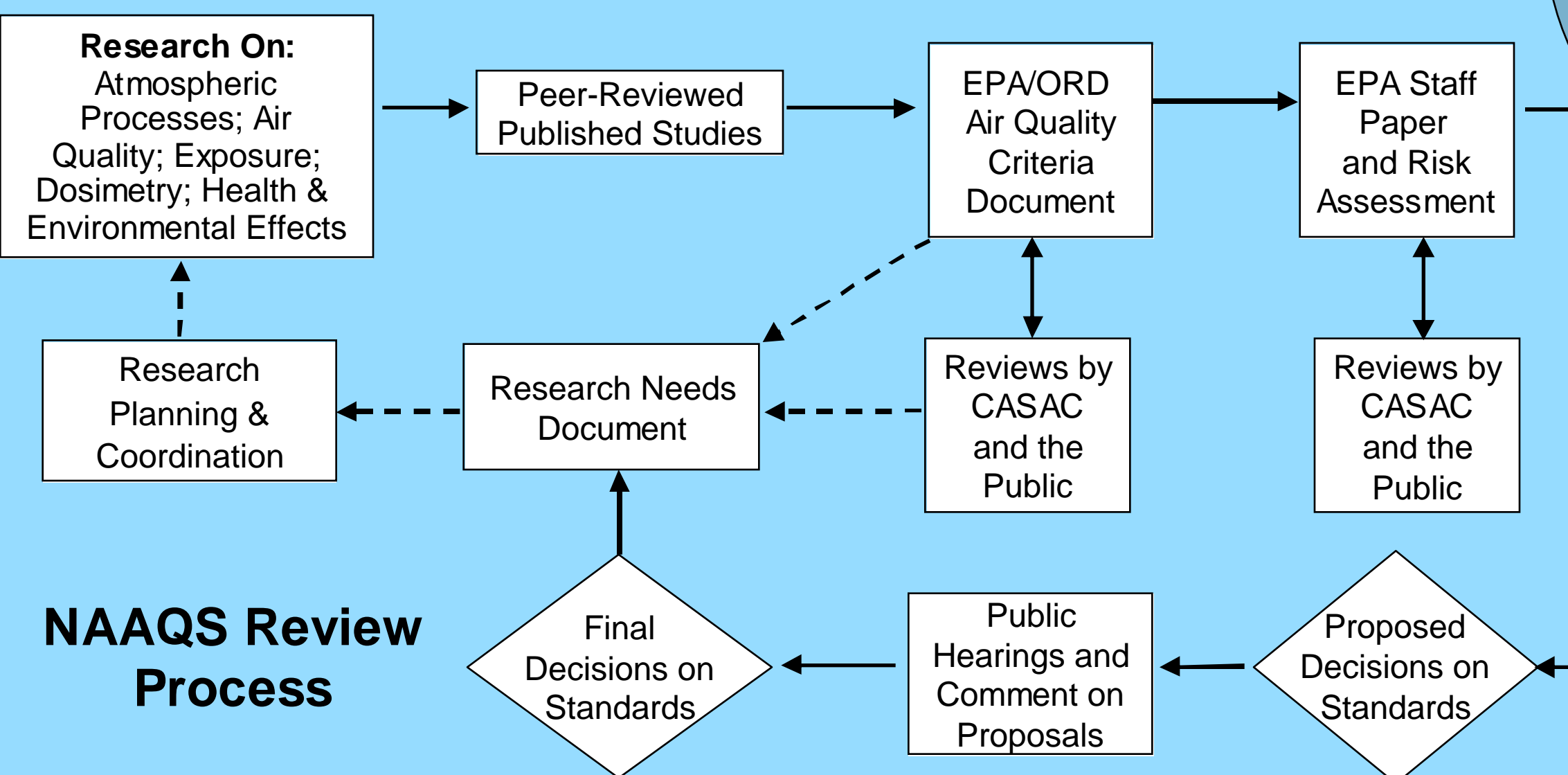
Ongoing NAAQS reviews

PM NAAQS Review

- Second draft Staff Paper released, draft staff recommendations include:
 - For fine particles, consider alternative PM_{2.5} standards for greater health protection, based on new evidence.
 - Revise standards for coarse particles to use PM_{10-2.5} as indicator.
 - Consider distinct secondary standards for protection against visibility impairment from fine particles.

Ozone NAAQS Review

- First draft Criteria Document released.
- First draft Staff Paper and Assessments in preparation.



Health and Exposure